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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/813,767

03/31/2004

Hankyu Moon

NECL-04-001

5251

7590 11/15/2007
Jeffery J. Brosemer, Ph.D., ESQ.
138 S. Telegraph Hill Road
Holmdel, NJ 07733

EXAMINER

BITAR, NANCY

ART UNIT

PAPER NUMBER

2624

MAIL DATE

DELIVERY MODE

11/15/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/813,767	Applicant(s) MOON ET AL.	
	Examiner Nancy Bitar	Art Unit 2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 August 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-5 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-5 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's response to the last Office Action, filed 04/16/2007, has been entered and made of record.
2. Applicant has amended claim 1 and 3. Claim 2 is cancelled and claim 6 has been withdrawn due to a restriction requirement dated 04/16/2007. Claims 1,3-5 are currently pending.
3. Applicants arguments filed 08/16/2007 have been fully considered but they are not persuasive.
4. Applicant argues that Li et al reference does not teach sparse representation generated by transforming a raw facial image into sets of vectors representing fits of the face to a random, sparse set of model configurations and the use of Sobel operators merely enhance the gradient features while PCA reduces redundancy. Moreover, Applicant defined the sparse representation is a collection of projections to a number of randomly generated possible configurations of the human face.
In response, Examiner disagree with applicant since the definition upon which applicant relies (sparse representation is a collection of projections to a number of randomly generated possible configurations of the human face) are not recited in the claims.

Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Examiner agrees that the Sobel operator enhances but also the two Sobel operator will also detect the edge of the face pattern which is reduced feature of the face (section 3.1) by all means, the sparse set. The PCA also reduces a large amount of features into a small amount of feature. Moreover, Li et al teaches the SVM (Support vector machine) where for each image patch from the scanning estimating the pose using the SVR pose estimator (see figure 1). Additionally the applicant's argument that the combination of all the features recited in claims 1-5 makes the applicant's invention patentable different is not found persuasive and thus Li still reads on the applicant's claimed invention.

All remaining arguments are reliant on the aforementioned and addressed arguments and thus are considered to be wholly addressed herein.

Examiner Notes

5. Examiner cites particular columns and line numbers in the references as applied to the claims below for the convenience of the applicant. Although the specified citations are representative of the teachings in the art and are applied to the specific limitations within the individual claim, other passages and figures may apply as well. It is respectfully requested that, in preparing responses, the applicant fully consider the

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references in entirety as potentially teaching all or part of the claimed invention, as well as the context of the passage as taught by the prior art or disclosed by the examiner

Information Disclosure Statement

6. The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609.04(a) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1,3-5 are rejected under 35 U.S.C. 102(b) as being anticipated by Li et al (Y.Li, S.Gong, and H. Liddell in an article entitled "Support vector regression and classification based on multi-view face detection and recognition", which was presented at FG2000).

As to claim 1, Li et al teaches a method of estimating a pose of a human head in natural scenes comprising the steps of: generating, a sparse representation of a human face by transforming a raw facial image into sets of vectors representing fits of the face to a random, sparse set of model configurations (section 2; support vector machine); training, the sparse representation to a set of face(s) in known poses (filter captures the changes both in horizontal and vertical directions which correspond to yaw and tilt changes respectively the filtered pattern are more representative than the original images; section 3.1 and figure 4 is a sample of training faces); and determining, a pose of a head by comparing the trained representation(s) to a facial image (the first 10 PCs and the reconstructed pattern from the first 20 PCs are compared to the original images and the filtered patterns, section 3.1; estimation head pose using SVR).

As to claim 3, Li et al teaches the method according to claim 2 wherein the transforming step further comprises the step of: collecting, salient features of the face image which are useful to estimate the pose of the face (nose bone, soft boundaries, face characteristics; section 3.2).

As to claim 4, Li et al teaches the method according to claim 3 wherein the transforming step further comprises the step of: suppressing, irrelevant variations of face appearance (figure 2 and section 3.2 and 4.3; note that PCA keeps essential features of recognition in order to remove the redundancy with respect to probability and gradient).

As to claim 5, Li et al teaches method according to claim 4 wherein the training step further comprises the step of: learning, using Support Vector Regression (SVR), a relation between the sparse representation and the pose(s) (estimating the pose using SVR pose estimator, section 3 and 3.1).

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

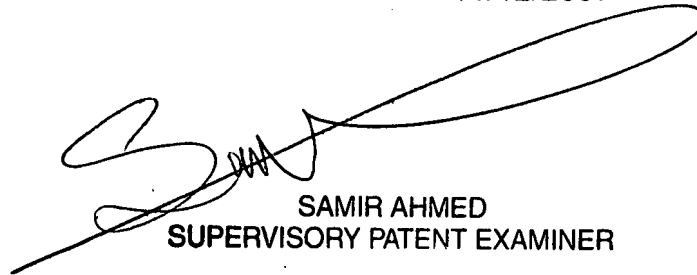
10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nancy Bitar whose telephone number is 571-270-1041. The examiner can normally be reached on Mon-Fri (7:30a.m. to 5:00pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta can be reached on 571-272-7453. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Nancy Bitar

11/12/2007



SAMIR AHMED
SUPERVISORY PATENT EXAMINER